

## Document Comment Log (Table) – Public Comments, Dispositioned

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Gilles Loopuyt / Eurocopter	AC 29.29 page 1 § a	<p>Despite the original Eurocopter request (ref. EC 22), there is still no clarification of what is to be included in the certificated empty weight as regards fluids.</p> <p>The requirement may be interpreted in several ways. Clarification should be provided, in particular, for expendable fluids in non-required equipment (such as windshield washers), or fluids in equipment filled with the use of special tools (such as air conditioning systems).</p>	<p>Make it clear whether reservoirs containing fluids required for normal operation (such as engine oil, transmission oil, hydraulic fluid in a required hydraulic system) shall be full or filled to a specified level.</p> <p>Provide additional guidance as regards specific fluids considering the following proposals:</p> <ul style="list-style-type: none"> <li>- Fluids in equipment filled with the use of special tools is included in the empty weight as provided for in the aircraft specifications,</li> <li>- Fluids not required for normal operation of the aircraft, in particular expendable fluids in non-required equipment, are not considered to be part of the empty weight.</li> </ul>	Adopted; revisions made to the paragraph .
Gilles Loopuyt / Eurocopter	AC 29.45 page 1 § a(5)	"As defined in 14 CFR § 1.1": reference to 14 CFR § 1.1 is incorrect.	Replace by correct reference.	Not adopted; rated 30-second OEI power and rated 2-minute OEI power is defined in Section 1.1 of 14 CFR part 1.
Gilles Loopuyt / Eurocopter	AC 29.45 page 1 § a(5)	Typo error: "2-minunte OEI"	"2-minute OEI"	Adopted; correction made.

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Gilles Loopuyt / Eurocopter	AC 29.143 page 1 § a(1)	The added guidance related to autorotation, referencing § 29.143(a)(2)(v), is only valid since amendment 29-51.  In amendment 29-24, § 29.143(a)(2)(v), was related to a glide manoeuver.	Move this guidance to a new section AC 29.143A, linked to § 29.143 at amendment 29-51.	Partially adopted; the word “glide” was replaced at amendment 29-51 with the traditional rotorcraft term “autorotation”. The sentence was changed to include “...glide (i.e., autorotation)...”
Gilles Loopuyt / Eurocopter	AC 29.143	Some references to sub-paragraphs of § 29.143 are no more valid since amendment 29-51, e.g.: - AC 29.143 a(2)(iii) refers to § 29.143(d) for controllability in case of engine failure, whereas this is now in § 29.143(e), - AC 29.143 a(2)(iv) refers to § 29.143(e), whereas it should now refer to § 29.143(f).	Provide a cross-reference to the new sub-paragraph numbering of § 29.143 in a new section AC 29.143A, linked to § 29.143 at amendment 29-51.	Not adopted; since AC 29-2C is a historical document, documenting acceptable methods of compliance to older certification bases exists. Section 29.143(d) was revised at amendment level 29-51. AC 29.143A, which exists for amendment level 29-51, correctly refers to the appropriate 14 CFR sections.
Gilles Loopuyt / Eurocopter	AC 29.903B page 1 § b	Sentence " <i>The restart capability should be available without any delay longer than that required to ensure a satisfactory restart</i> " looks like a recursive definition. Moreover, " <i>satisfactory</i> " is totally subjective.	Concept should be clarified or sentence removed.	Adopted; revised paragraph to clarify intent. Additionally, replaced “satisfactorily” with “successfully”.
Emmanuel Camhi / Eurocopter	AC 29.939 page 4 § b(1)(ii)(A) (3)(i)(E)	Expression “ <i>no extreme N2/N<sub>R</sub> droop</i> ” is subjective. What is considered as an extreme droop? Is it linked to a specific threshold?	A more objective specification is expected.	Adopted; revised paragraph to clarify “no extreme N2/N <sub>R</sub> droop”.

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R.J.Aubert, Bell Staff Engr.	29.1093, pgs 2 & 3, paras b.(1)(iv) & b.(2)(ii)(B) (1)	Inconsistency between natural icing requirements.	Need to specify Inadvertent or known icing: - Not required (b)(1)(iv). - Desirable (b)(2)(ii)(B)(1).	Concur but not adopted; no changes required to current AC material as text does not mandate natural icing testing for 29.1093 compliance, but does state that it is desirable.
R.J.Aubert, Bell Staff Engr.	29.1093, pgs 2 & 3, paras b.(1)(v) & (2)(ii)(A)(2)		Must provide rationale for increasing +40°F to +41°F.	Adopted; corrected to 41F (e.g., due to converting 5C to Fahrenheit).
R.J.Aubert, Bell Staff Engr.	29.1093, pg 3, para b.(2)(ii)(A) (1)	Anti-ice systems may be running wet during flight in IM as opposed to de-ice.		Adopted; “de-ice” changed to “anti-ice”.
R.J.Aubert, Bell Staff Engr.	29.1093, pg 3, para b.(2)(ii)(B)		Should address Inlet Barrier Filters in section (b)(2)(ii)(B).	Concur but not adopted; the Inlet Barrier Filter policy statement has not yet been approved. Once finalized, it will be incorporated into this AC at a later date.
R.J.Aubert, Bell Staff Engr.	29.1093, pg 5, para b.(2)(iv)		Stabilization should be expressed in terms of engine power margins representative of 30 minutes hold or 180 nm cruise extrapolated to OEI requirements.	Not adopted; stabilized engine operation requires stabilized engine parameters. Inlet ice accretion that is not shown to be stable after 30 minutes, must address the maximum time duration icing conditions.
Gilles Loopuyt / Eurocopter	AC 29.1093 pg 6 para c.(1)(ii)	In Part 29/CS 29, the requirement that engine air intakes of helicopters forbidden to fly into known icing conditions must cover inadvertent icing encounters is included at <u>Part 29/CS-29 Book 1 level</u> (§ 1093 (b)(1)(i)) while AC 29 clarifies this intent ( <i>‘In showing compliance with § 29.1093(b)(1)(i), the</i>	Provided it would be technically relevant, the new concept of "INADVERTENT FALLING & BLOWING SNOW CONDITIONS" should be introduced at airworthiness code level in FAR Part 29 / CS 29 book 1, through a standard rulemaking process.	Not adopted; past experience has shown that reliance on pilot adherence to RFM limitations alone is not practical to prevent inadvertent snow encounters. If an applicant does not wish to perform flight testing to demonstrate flight in Inadvertent Falling & Blowing snow conditions, they must accept a temperature limitation in the RFM (i.e. no flight below 5C/41F).

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		<p><i>FAA/AUTHORITY has accepted the concept of limited exposure associated with escape from inadvertent ice encounters’).</i></p> <p>Concerning snow, § 29.1093(b)(1)(ii) currently allows the applicant not to demonstrate any snow conditions "<i>within the limitations established for the rotorcraft</i>" (in this case the rotorcraft is forbidden to fly in snow conditions) .</p> <p>If a new concept were to be introduced that the engine air intake has to cover inadvertent encounters of snow, by analogy with the current situation in FAR 29/CS-29 Book 1 and in the TCCA CAR Regulations, this new requirement should be written <u>at FAR Part 29 / CS 29 book 1 level</u>, as it is the case:</p> <ul style="list-style-type: none"> <li>- for inadvertent ice encounters in 29.1093(b)(1)(i),</li> <li>- in TCCA CAR 529.1093 (b)(1)(iii) ("<i>if certification for flight in snow has not been requested, the engine tolerance to snow shall be demonstrated;</i>").</li> </ul>		

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Robert Leschi / Eurocopter	AC 29.1093 pages 6-8 § c(1)(ii) and c(2)(ii)	<p>To our opinion, the limitation which forbids flight under snow can continue to be inserted in the RFM without any snow demonstration because:</p> <p>Unlike for icing conditions, snow is immediately visible by the crew. In case the crew inadvertently encounters snow conditions, they can immediately react in order to exit snow conditions.</p> <p>In any case, there is no reason to consider in a possible demonstration to inadvertent snow any other operation than level flight, descent and landing. Indeed, ground operations, IGE hover or takeoff in snow conditions should be strictly forbidden for a rotorcraft which is not certified to snow conditions. Guidance should be refined.</p>	<p>A Rulemaking Group involving Industry should be established in order to:</p> <ul style="list-style-type: none"> <li>- state about the need for any demonstration of robustness of air inlets to inadvertent snow conditions, on the basis of experience or novelties,</li> <li>- if this need is confirmed, precisely define the corresponding requirements to be added in FAR Part 29 / CS 29 book 1 and in AC 29, and check the compatibility of any new requirement with the whole AC 29.1093 § c.</li> </ul>	<p>Not adopted; if an applicant does not wish to perform flight testing to demonstrate flight in Inadvertent Falling &amp; Blowing snow conditions, they must accept a temperature limitation in the RFM (i.e., no flight below 5C/41F).</p>
R.J.Aubert, Bell Staff Engr.	29.1093A, Pg 11, para b.(4)	<p>Proposed flight manual limitation is too restrictive.</p>		<p>Not adopted; if an applicant does not wish to perform flight testing to demonstrate flight in Inadvertent Falling &amp; Blowing snow conditions, they must accept a temperature limitation in the RFM (i.e., no flight below 5C/41F).</p>

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Gilles Loopuyt / Eurocopter	AC 29.1309 page 16 § b(7) (+ figure AC 29.1309-2 page 6)	DO-178B is no more the latest software related standard.	Replace reference to DO-178B by reference to DO-178C or to the latest issue of AC 20-115.	Adopted; revision made.
Gilles Loopuyt / Eurocopter	AC 29.1309	Section 1309 b(9), related to HIRF, has been removed.  However, HIRF specific § 29.1317 is only valid from amendment 29-49.  Consequently, for amendments prior to 29-49, there is no more consideration for HIRF.	The following could be done in order to restore the missing guidance: <ul style="list-style-type: none"> <li>- Restore previous section 1309 b(9), related to HIRF, in AC 29.1309,</li> <li>- Rename new section 29.1309A (Amendment 29-53) as 29.1309B,</li> <li>- Insert a new section 29.1309A (Amendment 29-49) to indicate that, starting from amendment 29-49, HIRF considerations have to be taken from § 1317.</li> </ul>	Not adopted; prior to the establishment of 29.1317, HIRF was addressed via Special Condition with the specific method of compliance established therein. With the incorporation of 29.1317, the re-use of the previously issued special condition is limited and was sunset as of December 2012. Any project subsequent to the establishment of 29.1317 must show compliance to that rule, which is addressed in the proposed AC.
Stéphane Bailly / Eurocopter	AC 29.1309 page 13 figure AC 29.1309-5	Considering Part / CS 29.1309, a qualitative probability is expected and no quantitative level is clearly stated. This should be reflected in Figure AC29.1309-5, which does not anymore allow a qualitative assessment only for simple or conventional systems when involved in HAZ or CAT failure conditions.  It shall be considered that quantification is difficult for some items, like mechanical items involved in 29.1309 analyses.	Qualitative assessment should not be precluded, provided necessary precautions and substantiation (installation precautions, precautions against dormant failures, independence ...).  This could be done either through a modification of figure AC 29.1309-5 or through an added footnote.	Adopted; revision made.

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		<p>Usually, redundancy is used, which leads to large margins versus extremely improbable level, despite an accurate figure cannot be established.</p> <p>In a same manner, simple electromechanical items such as relays can be easily quantified; nevertheless it seems more realistic to state “extremely improbable” than <math>1E^{-14}/FH</math> (i.e. <math>(1E^{-7})^2</math>). Such situations can correspond to emergency devices such as: hoist squib activation (anticipating future 29.865 which will require 1309 approach), emergency floatation activation, old fashion fire detection/extinguishing systems, ...</p>		
Garmin	AC 29.1317 (a)	<p>Referring to “Beginning December 1, 2012, data used to show compliance as part of a previously issued special condition will no longer be accepted as a means of showing compliance with paragraph (a) of § 27.1317.”</p> <p>There is a typo in the AC number.</p>	<p>Correct AC number as follows: “Beginning December 1, 2012, data used to show compliance as part of a previously issued special condition will no longer be accepted as a means of showing compliance with paragraph (a) of § 29.1317.”</p>	Adopted; revision made.

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Garmin	AC 29.1317 (a)	<p>Referring to “Beginning December 1, 2012, data used to show compliance as part of a previously issued special condition will no longer be accepted as a means of showing compliance with paragraph (a) of § 27.1317.”</p> <p>The explanation states that the new rule will not allow the use of any previously issued SCs. This only applies when the cert basis includes the new rule. It would help to clarify that if the cert basis, that included the SC, has not changed then you can continue to use the SC. If the cert basis includes the new rule then you cannot use the SCs anymore.</p>	<p>Proposed wording change: “Beginning December 1, 2012, if the certification basis includes § 29.1317 then the data used to show compliance as part of a previously issued special condition will no longer be accepted as a means of showing compliance with paragraph (a) of § 29.1317. The use of Paragraph (d) of § 29.1317 will no longer be allowed.”</p>	<p>Not adopted; the previous certification basis will not be reusable for subsequent approvals after December 01, 2012. The explanation that reuse of HIRF special conditions is not allowed under those circumstances is correct as written.</p>
Garmin	AC 29.1317 (b)	<p>Add the use of HIRF policy memo dated 02/26/2008. This provides good guidance on when HIRF rule is applied with regard to § 21.101.</p>	<p>Proposed addition: (3) HIRF policy memorandum dated February 26<sup>th</sup> 2008, titled “Application of High-intensity Radiated Fields (HIRP) Protection Final Rule under §21.101”. This policy memorandum includes the use of the SCs which is no longer allowed; however, the guidance that explains when the new rule applies is still considered valid.</p>	<p>Not adopted; the referenced policy memorandum focused on the ramifications of reusing the special condition in lieu of stepping up to the (then) new rule. Ultimately, AC 20-158 is referenced in the policy memorandum and is referenced in the AC 29.1317, which is appropriate and adequate.</p>

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Damien Morizot / Eurocopter	AC 29.1337 page 1 § a	<p><i>"When two or more tanks are interconnected so that a failure of the system could cause fuel to become trapped in a fuel tank, the fuel quantity indicating system must indicate the remaining usable fuel to the flight crew".</i></p> <p>The objective is that the crew has the information on the effective usable fuel quantity.</p> <p>However, this sentence may be interpreted as requiring an automatic computation and display of the total amount of usable fuel, considering the status of the transfer system.</p> <p>Other solutions are feasible, e.g. displaying the amount in each tank and the indication of the status of the transfer systems. Such a solution has the advantage of reminding to the crew the unusable fuel mass as a payload.</p>	<p>Suggestion is to rephrase the sentence from an objective oriented point of view, instead of a solution oriented point of view. For example:</p> <p><i>"When two or more tanks are interconnected so that a failure of the system could cause fuel to become trapped in a fuel tank, the flight crew must have the ability to know the total effective amount of remaining usable fuel".</i></p>	Adopted; revision made.
Gilles Loopuyt / Eurocopter	AC 29.1337 page 2 § b(3)(iii)	<p><i>"Consistent with the requirements of § 27.1337(b)(2)":</i> reference to Part 27 is not appropriate.</p>	Reference § 29.1337(b)(2).	Adopted; revision made.

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Gilles Loopuyt / Eurocopter	AC 29.1357 pages 2-3 § b(9)	<p>New guidance AC 29.1357 b(9) relates (without referencing it) to § 29.1357(d), which has already a specific guidance in AC 29.1357 b(5). It does not bring any complementary information. Even, it fails to include the concept of identification of breakers or fuses essential to safety.</p> <p>Moreover, the given examples are missing clarity and are only examples: the complete list of circuit breakers (or fuses) the accessibility of which is essential to the safety should result from aircraft system safety analyses.</p>	<p>Remove AC 29.1357 b(9).</p> <p>If the intent to define a new concept not included in § 29.1357(d), this should be addressed in an adequate Rulemaking Group.</p>	<p>Partially adopted; the information in paragraph b.(9) includes more specific criteria that the applicant is expected to satisfy in order to meet the existing requirements of the rule. The context of paragraph b.(9) has been incorporated into paragraph b.(4).</p>